# Claims

[1]     1. A mutual agreement type sale price determination method using cumulative
distributions, in which a plurality of purchasers and a plurality of sellers
determine a sale price to trade commodities using an on-line auction method,
comprising:

a first step of receiving offered selling prices, desired quantities of commodities
to sell, and personal information from the sellers, and offered purchasing prices,
desired quantities of commodities to purchase, and personal information from the
purchasers through an input unit, and storing them in a storage unit;

a second step of a price determination unit obtaining cumulative distributions of
the desired quantities of commodities to sell by arranging the offered selling
prices and the desired quantities of commodities to sell, which are input from the
sellers, in order ranging from a lowest price to a highest price with respect to a
reference price;

a third step of a price determination unit obtaining cumulative distributions of the
desired quantities of commodities to purchase by arranging the offered
purchasing prices and the desired quantities of commodities to purchase, which
are input from the purchasers, in order ranging from the highest price to the
lowest price with respect to the reference price;

a fourth step of the price determination unit arranging the cumulative dis-
tributions of the desired quantities of commodities to sell and the cumulative dis-
tributions of the desired quantities of commodities to purchase according to
individual prices between the lowest and highest prices with respect to the
reference price, and comparing the cumulative distributions with each other; and

a fifth step of the price determination unit determining at least one price, at
which, in the cumulative distributions of the desired quantities of commodities to
sell and purchase, a quantity of commodities for sale is maximal and a
cumulative deviation is minimal, to be the sale price, and determining the
quantity of commodities, which is available for sale at the determined sale price,
to be a quantity of commodities for sale.

[2]     2. The mutual agreement type sale price determination method according to
claim 1, further comprising, if the number of the determined sale prices is two, a
sixth step of comparing cumulative quantities of commodities to purchase and
cumulative quantities of commodities to sell at the determined sale prices, de-
termining a higher price to be the sale price when a cumulative quantity of
commodities to purchase is greater than a cumulative quantity of commodities to
sell, and a lower price to be the sale price when a cumulative quantity of

commodities to sell is greater than a cumulative quantity of commodities to purchase, and determining an average of two sale prices to be the sale price when a cumulative quantity of commodities to purchase and a cumulative quantity of commodities to sell are the same, or cumulative quantities of commodities to purchase and cumulative quantities of commodities to sell are symmetrically crossed.

[3]     3. The mutual agreement type sale price determination method according to claim 2, further comprising, if the number of the determined sale prices is three or four, a seventh step of comparing cumulative quantities of commodities to purchase and cumulative quantities of commodities to sell at the determined sale prices, and determining an average of a higher price, at which the cumulative quantity of commodities to purchase is greater than cumulative quantity of commodities to sell, and a lower price, at which the cumulative quantity of commodities to sell is greater than the cumulative quantity of commodities to purchase, to be the sale price.

[4]     4. The mutual agreement type sale price determination method according to any one of claims 1 to 3, further comprising an eighth step of determining a sale type by determining the quantity of commodities for sale based on the determined sale price, and classifying the personal information according to an area, sale characteristics, and a degree of preference.

[5]     5. A mutual agreement type sale price determination system using cumulative distributions, in which a plurality of purchasers and a plurality of sellers determine a sale price to trade commodities using an on-line auction method, comprising:

an input unit for receiving offered selling prices, desired quantities of commodities to sell, and personal information from the sellers, and offered purchasing prices, desired quantities of commodities to purchase, and personal information from the purchasers;

a storage unit for storing the offered selling prices, the desired quantities of commodities to sell, and the personal information input from the sellers, and the offered purchasing prices, the desired quantities of commodities to purchase, and the personal information input from the purchasers;

a display unit for displaying information on commodities that the sellers and purchasers want to trade, and an input window so that information on sales is input therethrough; and

a price determination unit for obtaining cumulative distributions of the desired quantities of commodities to sell by arranging the offered selling prices and the desired quantities of commodities to sell, which are input from the sellers, in

order ranging from a lowest price to a highest price with respect to a reference price, and obtaining cumulative distributions of the desired quantities of commodities to purchase by arranging the offered purchasing prices and the desired quantities of commodities to purchase, which are input from the purchasers, in order ranging from the highest price to the lowest price with respect to the reference price, and determining at least one price, at which, in the compared cumulative distributions, a quantity of commodities for sale is maximal and a cumulative deviation is minimal, to be the sale price, and determining a quantity of commodities available for sale at the sale price to be a quantity of commodities for sale by arranging the cumulative distributions of the desired quantities of commodities to sell and the cumulative distributions of the desired quantities of commodities to purchase and comparing the cumulative distributions with each other according to prices arranged on the basis of the reference price.

[6]     6. The mutual agreement type sale price determination system according to claim 5, wherein, if the number of the determined sale prices is two, the price determination unit compares cumulative quantities of commodities to purchase and cumulative quantities of commodities to sell at the determined sale prices, determines a higher price to be the sale price when a cumulative quantity of commodities to purchase is greater than a cumulative quantity of commodities to sell, and a lower price to be the sale price when a cumulative quantity of commodities to sell is greater than a cumulative quantity of commodities to purchase, and determines an average of two sale prices to be the sale price when a cumulative quantity of commodities to purchase and a cumulative quantity of commodities to sell are the same or when cumulative quantities of commodities to purchase and cumulative quantities of commodities to sell are symmetrically crossed and, if the number of the determined sale prices is three or four, the price determination unit compares the cumulative quantities of commodities to purchase and the cumulative quantities of commodities to sell at the determined sale prices, and determines an average of a higher price, at which a cumulative quantity of commodities to purchase is greater than a cumulative quantity of commodities to sell, and a lower price, at which a cumulative quantity of commodities to sell is greater than a cumulative quantity of commodities to purchase, to be the sale price.

[7]     7. The mutual agreement type sale price determination method according to claim 5 or 6, further comprising a delivery control unit for determining a sale type by determining the quantities of commodities for sale based on the determined sale price and classifying the personal information according to an

area, sale characteristics, and a degree of preference.